

National Bureau of Standards

Certificate of Analysis

Standard Reference Material 348a

High-Temperature Alloy A286

(In Cooperation with the American Society for Testing and Materials)

This Standard Reference Material (SRM) is in the form of chips sized between 0.50 and 1.18 mm sieve openings (35 and 16 mesh). It is intended for use primarily in standardization and verification of chemical methods of analysis. Material from the same lot is available in disk form as SRM 1230, primarily for use in optical emission and x-ray spectrometric methods of analysis.

<u>Constituent</u>	<u>Percent by Weight¹</u>	<u>Estimated Uncertainty²</u>
Carbon	0.044	0.002
Manganese	.64	.02
Phosphorus	.023	.002
Sulfur	.0007	.0002
Silicon	.43	.01
Copper	.14	.01
Nickel	24.2	.10
Chromium	14.8	.10
Vanadium	0.23	.01
Molybdenum	1.18	.03
Titanium	2.12	.07
Boron	0.0055	.0004
Aluminum	.24	.01
Cobalt	.15	.01

¹The certified value listed for a constituent is the present best estimate of the "true" value based on the results of the cooperative program for certification.

²The estimated uncertainty listed for a constituent is based on judgment and represents an evaluation of the combined effects of method imprecision, possible systematic errors among methods and material variability. (No attempt was made to derive exact statistical measures of imprecision because several methods were involved in the determination of most constituents.)

The overall coordination of the technical measurements leading to certification were performed under the direction of J.I. Shultz, Research Associate, ASTM-NBS Research Associate Program.

The technical and support aspects involved in the preparation, certification, and issuance of this Standard Reference Material were coordinated through the Office of Standard Reference Materials by W.P. Reed and J.A. Norris.

Gaithersburg, MD 20899
March 30, 1987

Stanley D. Rasberry, Chief
Office of Standard Reference Materials

(Over)

PLANNING, PREPARATION, TESTING, ANALYSIS:

The material for this SRM was provided by Crucible Metals Corporation, Specialty Metals Division, Syracuse, NY.

Homogeneity testing was performed at NBS by J.A. Norris and T.W. Vetter, Inorganic Analytical Research Division.

Cooperative analyses for certification were performed in the following laboratories:

- Allegheny Ludlum Steel Corp., Analytical Services, Brackenridge, PA, R.M. Crain, G.L. Bergstrom and C.M. Bottegal.
- Crucible Materials Corp., Specialty Metals Division, Syracuse, N.Y., R.J. Wlodarczyk.
- Crucible Materials Corp., Research Center, Pittsburgh, PA, G.L. Vassilaros and C.J. Byrnes.
- Cytemp Specialty Steels Division, Cyclops Corp., Titusville, PA, F.F. Liberato and D.K. Luoni.
- General Electric Co., Cleveland, OH, J.W. Fulton.
- Ladish Co. Inc., Cudahy, WI., G. Bugalski and J.E. Rafalski.
- National Bureau of Standards, Inorganic Analytical Research Division, R.C. Gauer.

Elements other than those certified may be present in this material at the concentrations as indicated below. These are not certified, but are given as additional information on the composition.

<u>Element</u>	<u>Percent, by Weight</u>
Arsenic	(<0.005)
Iron	(55.2)
Lead	(0.0005)
Niobium	(0.07)
Tin	(<0.01)
Tungsten	(0.07)
Zirconium	(<0.01)